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NPIC/R-1029/62

July 1962

This report supersedes NPIC/R-1014/62, High-Explosives Development Complex Near Hsiang-hsiang, China, dated April 1962, copies of which should be destroyed.

PHOTOGRAPHIC INTERPRETATION REPORT

HSIANG-HSIANG EXPLOSIVES COMPLEX

NEAR HSIANG-T'AN, CHINA



ARMY



NAVY



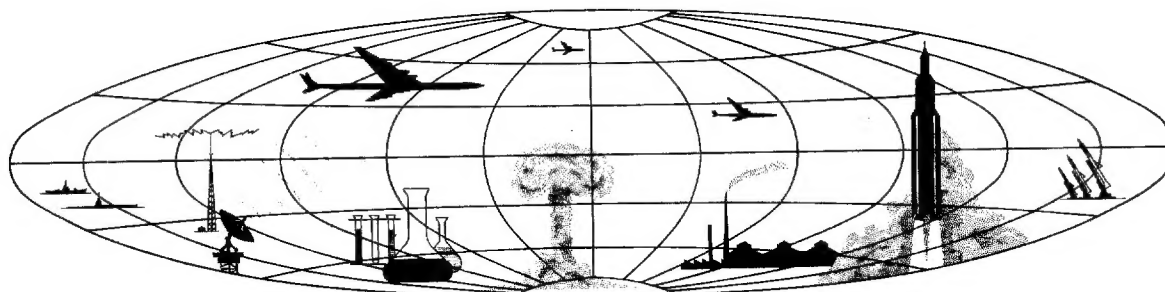
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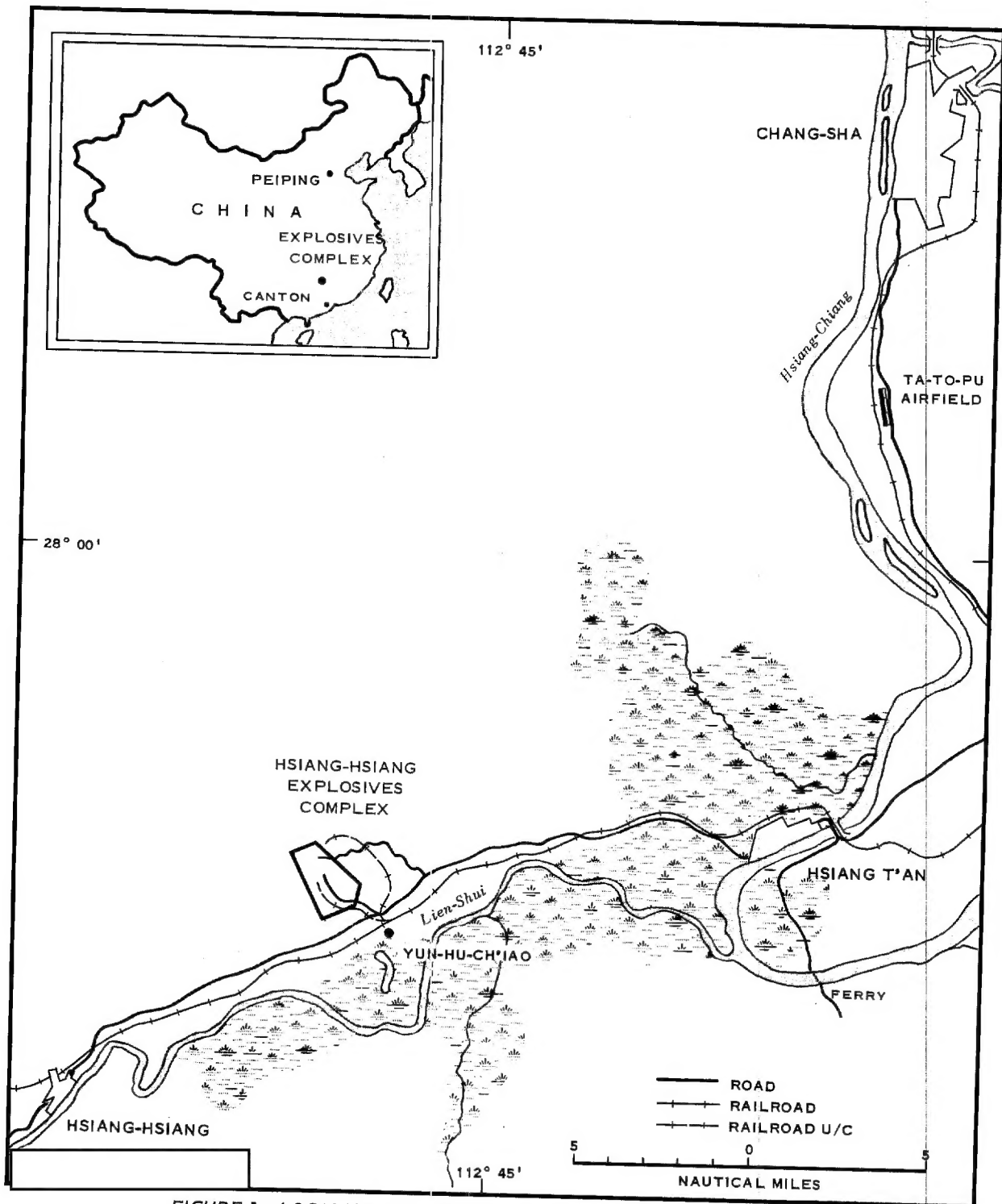


FIGURE 1. LOCATION OF HSIANG-HSIANG EXPLOSIVES COMPLEX.

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INTRODUCTION

A large explosives complex was seen for the first time on good-quality photography [] at a site 9 nautical miles (nm) north-east of Hsiang-hsiang in Hunan Province, China. The site, at 27-50N 112-40E, is only 13 nm southwest of the larger, industrialized town of Hsiang-t'an (Figure 1) and lies within an area of numerous small ponds, hills, and cultivated valleys. The complex is layed out along a small stream which flows south into the Lien Shui. Two roads and a rail spur connect the site with the main highway and railroad between Hsiang-hsiang and Hsiang-t'an. A new rail spur is under construction east of the complex (Figure 1).

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This explosives complex is characterized by its large overall size, its relative isolation and security, its numerous blast-protected structures, and its extensive, elaborately landscaped housing and administrative facilities. As shown in Figure 2, the complex is comprised of a factory area, a processing area, a loading and storage area, and a housing and administration area. These areas are separately secured by perimeter fences and/or walls. The Factory Area has the appearance of being the oldest area, perhaps about 5 years old, although expansion is currently in progress. The other areas appear to be slightly newer. Construction is also evident along a new road being built to the southwest of the complex, as shown in Figure 2. The purpose or extent of this new construction cannot be determined at this time.

The Hsiang-hsiang complex has been compared with various World War II arsenals in China which reportedly produced mainly gunpowder, blasting powder, and some small arms. 1/ The facilities at Hsiang-hsiang, particularly in the processing area, do not compare very favorably with those installations. They seem to be better suited for handling high explosives (HE) or propellents, capabilities the Chinese reportedly were

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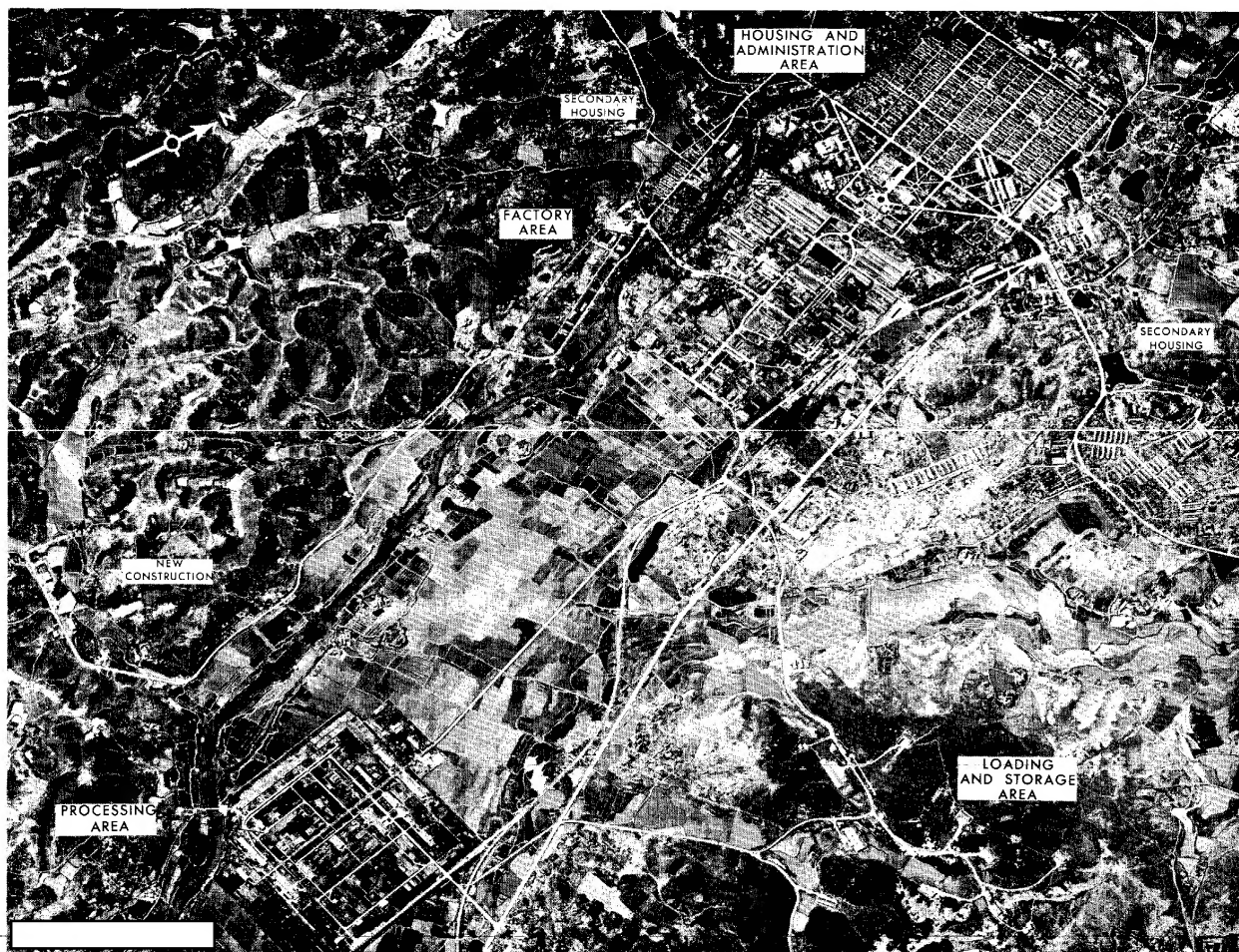


FIGURE 2. HSIANG-HSIANG EXPLOSIVES COMPLEX

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behind in during World War II and the postwar years. 1/ Although it seems likely that this complex was designed for production of conventional HE or propellants, it is estimated that it could eventually have a capability for producing HE components [] or propellants for missiles. However, the testing facilities which would be expected for these special products have not been specifically identified at this complex on the present coverage.

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FACTORY AREA

This area (Figure 3) is located in the northern part of the explosives complex just south of the Housing and Administration Area. It measures approximately 2,500 by 2,000 feet. A wall separates it from the Housing and Administration Area. There is evidence of other fencing around the rest of the Factory Area although these fences are more difficult to trace than the more clearly-defined walls. Three separately-secured areas are adjacent to the Factory Area. Two of these areas, to the southeast, are believed to be special handling facilities; an area to the southwest is a probable burn area/proof yard. These areas are felt to be functionally associated with the Factory Area.

The Factory Area is served by a rail spur which runs along its eastern border. Four railroad cars can be seen on this track. A good system of primary and secondary roads serve the factory itself and connect it with the other areas of the complex. Three trucks are visible on the wide, paved roads northeast of the Factory Area.

Just inside the main entrance on the northwest side of the factory are several large industrial buildings with complex roof patterns characteristic of fabrication industries. The largest of these measures 470 by 260 feet overall. Other buildings in this section probably include machine shops, assembly facilities, foundries, forges, and other facilities necessary for producing munitions hardware.

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Of special interest in the northwestern corner of the Factory Area is a 330- by 200-foot building, which was in the early stages of construction at the time of the photography. Just south of that structure is a long monitor-roofed structure 335 by 70 feet and three stories high. This second building, possibly a laboratory which appears to be in the late stages of construction, has a crane nearby.

As illustrated in Figure 3, a boilerhouse has been identified in the southern portion of the Factory Area. This facility is separately walled, and has two adjacent stacks. Coal is piled within the walled area as it is along the railroad track leading into the factory area.

The southern portion of the Factory Area includes five magazines protected by earth revetments. These magazines are associated with a series of interconnected buildings which are probably involved in handling or loading explosive materials in conjunction with munitions hardware produced in the rest of the Factory Area.

Southeast of the Factory Area proper are two separately-secured facilities believed to be for special handling of certain unknown explosives (Figure 3). These facilities appear to be unique, and their specific functions have not been determined.

The first of these facilities consists of two identical buildings, each 115 by 30 feet, and placed back to back 60 feet apart, (inset Figure 3). Each building is covered over with earth on three sides, and has eight short stacks or vents protruding from the earth-covered roof. A broad paved ramp serves the uncovered fourth side of each building, where two entrances are visible.

The second facility just east of the first consists of a loop road pattern straddled by a series of interconnected buildings (Figure 3).

Southwest of the Factory Area proper, on the opposite side of the stream, is a hilly area which is the site of a large fenced facility containing two large revetments and several smaller, road-served buildings. There are two rock quarries within the fenced facility and a third immediately south of it.

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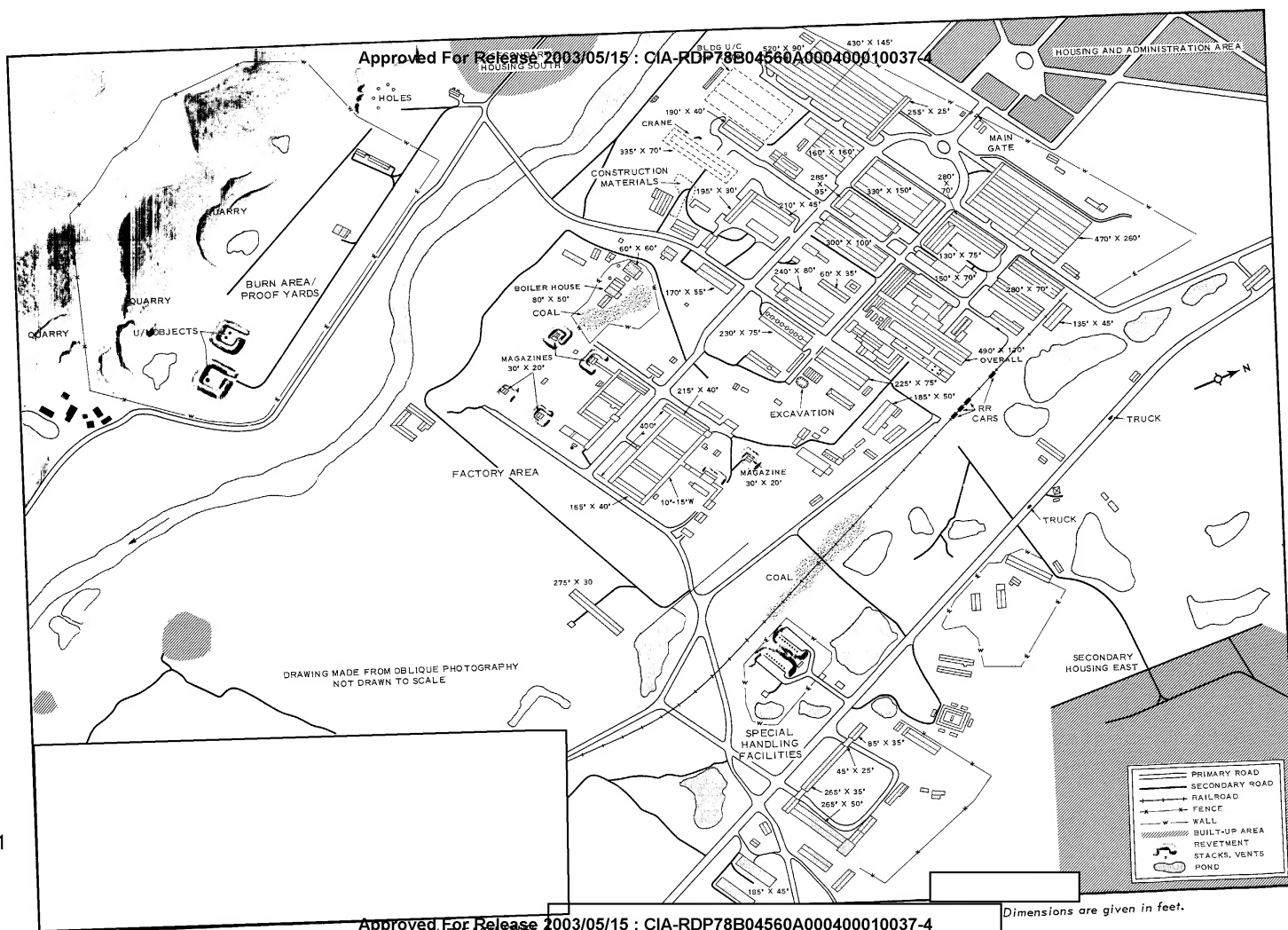


FIGURE 3. FACTORY AREA AND ADJACENT FACILITIES.

Dimensions are given in feet.

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It is felt that the revetments are probably used for burning explosive waste materials and/or for checking out small quantities of explosive materials produced at the complex. Additional space is available within the fenced facility for expansion. In a hill just north of the fenced facility are five holes, possibly evidence of blasting activity, but the exact purpose or nature of these holes is unknown.

PROCESSING AREA

The Processing Area is about one nm south of the Factory Area and joined to it by a wide, hard-surfaced road and rail spur. This rectangular area, 2,100 by 1,900 feet, is enclosed by a perimeter fence and an inner wall (Figure 4). There are three entrances: one at the north boundary; a second at the east boundary near the northeast corner; and a third at the southwest corner. Several checkpoints are noted along the main road leading into the Processing Area from the north, but similar checkpoints have not been identified along the road entering this area from the east. This area however, appears to have the best physical security of any area at the complex.

Of the 67 various-sized buildings found in the Processing Area, 11 are heavily earth-revetted and at least three of the more prominent buildings have interior blast walls, as indicated in Figure 4. Possible blast walls also appear to be present within several other buildings.

Of particular interest is a 350-by 45-foot process building in the southwest corner of the Processing Area. This structure is composed of three sections, separated to some degree by interior blast walls, with six vents visible on the easternmost section. The most significant feature is an enclosed passageway, 15 feet wide, which connects the large process building with six small buildings in a row. These 35- by 30-foot buildings parallel the west boundary of the Processing Area. Each is individually serviced by means of curved extensions of the enclosed

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passageway. These small houses may be mix houses or rest houses where explosives are placed for curing.

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Also connected by an enclosed, 10-foot-wide passageway, are three parallel process buildings in the center of the Processing Area. The middle structure is revetted while the other two have interior blast walls. South of these is a 300- by 45-foot process building having about 18 roof ventilators and a pipeline visible along one side.

In the northeast corner of the Processing Area are two rectangular buildings connected by a narrow structure which could house a conveyer system such as an endless, overhead bucket-way.

Within a separate enclosure at the north end of the Processing Area are a boilerhouse and several structures, probably furnishing support to the Processing Area.

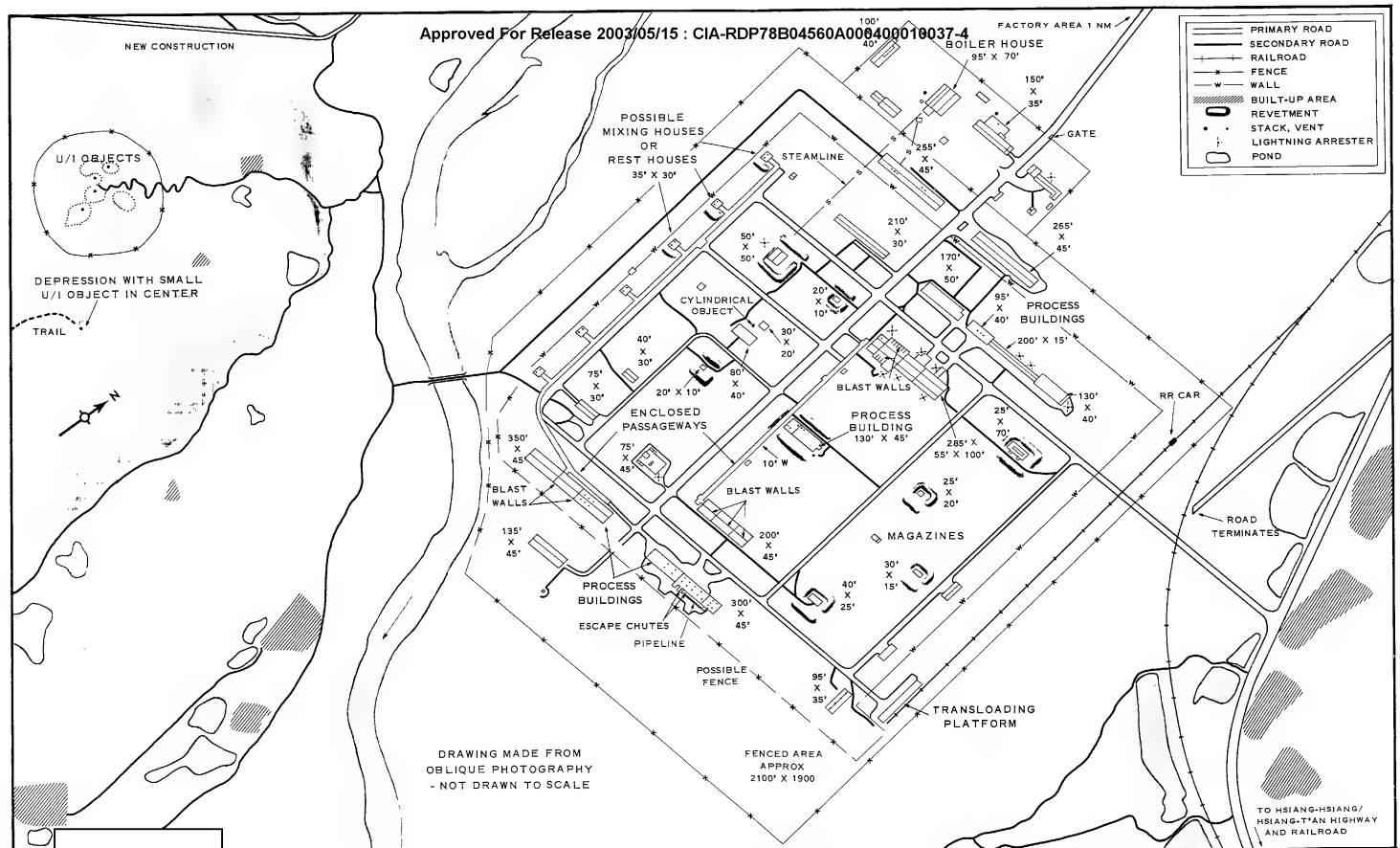
In general, the Processing Area appears to be a well laid out, secure area with facilities for fabricating a highly explosive material derived from nitroglycerine and/or nitrocellulose. Such operations as mixing, casting, machining, pressing, and extrusion could be carried out in this area.

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FIGURE 5. EXPLOSIVES PROCESSING STRUCTURES

Southwest of the Processing Area is a circular fenced area situated in the hills. This area is road served and contains four small unidentified objects situated on several light-toned mounds. This area and a small rectangular depression southeast of it (Figure 4) are probably not directly related to the explosives complex.

LOADING AND STORAGE AREA

This area, situated in the hills northeast of the Processing Area and southeast of the factory area, occupies an irregular area approximately 4,000 by 3,600 feet overall and is served by separate roads from the Factory and Processing Areas. Individual roads serve each of the 23 buildings within this area (Figure 6). These buildings are not revetted but are protected by natural terrain and are well spaced. Four storage magazines, 20 by 15 feet each, in the southeast portion of the area have been set into cuts in the hillside for additional protection. Three of the buildings, 105 by 45 feet, two, 140 by 45 feet, and several smaller build-

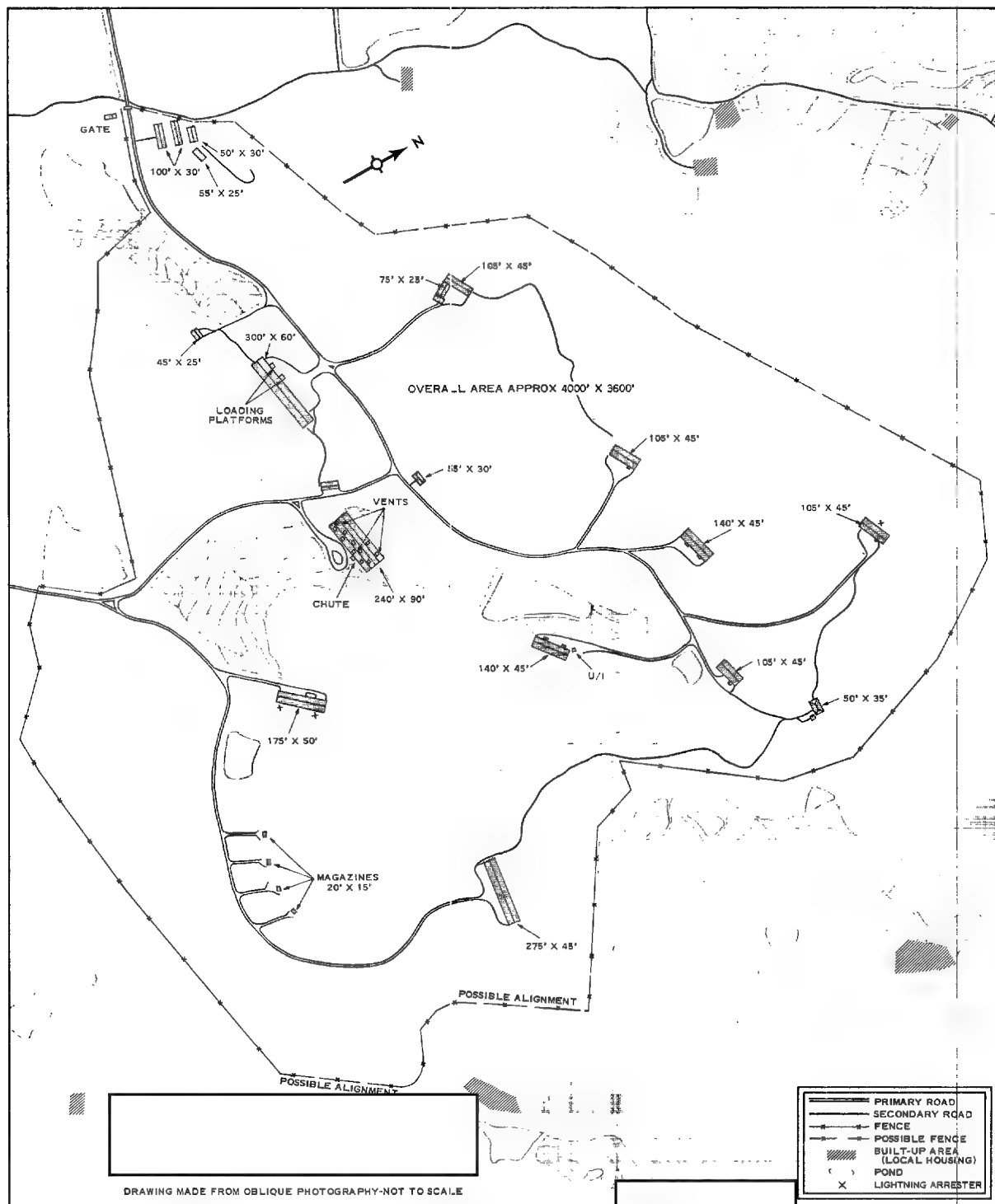
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ings are probably for explosives storage while some of the larger buildings probably have more complex functions, such as the loading and check-out of various munitions. One of these larger buildings, 240 by 90 feet, has 11 rectangular vents or skylights on its roof and an oval service road. Escape chutes and lightning arresters are visible at several of the buildings in this area.

HOUSING AND ADMINISTRATION AREA

Immediately north of the Factory Area is the Housing and Administration Area (Figure 7). The significance of this area lies in its relatively large size and elaborate nature, indications of the magnitude and importance of the explosives complex as a whole. These factors also serve to illustrate that this complex has probably existed for several years. This is based on a study of the intricacies observed in the landscaping and the evidence of continued use and expansion of buildings and roads within the area.

The focal point of the administrative section is the main headquarters building, a multistory structure located within a walled enclosure. It is framed by two identical multistory office buildings to the south of it and two smaller support buildings to the north, all within the enclosure.

Another very prominent building northwest of the headquarters has the appearance of a large auditorium (cultural palace) or gymnasium. A park-like area north of the headquarters features two athletic courts with basketball backboards visible. Elsewhere in this section are mainly service or support-type buildings of one to two stories. However, southwest of this area on the opposite side of the stream is a T-shaped, multistory institutional building, possibly a school.

Facilities for housing a very sizable work force are available at the Hsiang-hsiang complex in the main housing section and at secondary housing facilities to the south and to the east of that section (Figure 7). This housing is considered good-quality housing for China, but unusual

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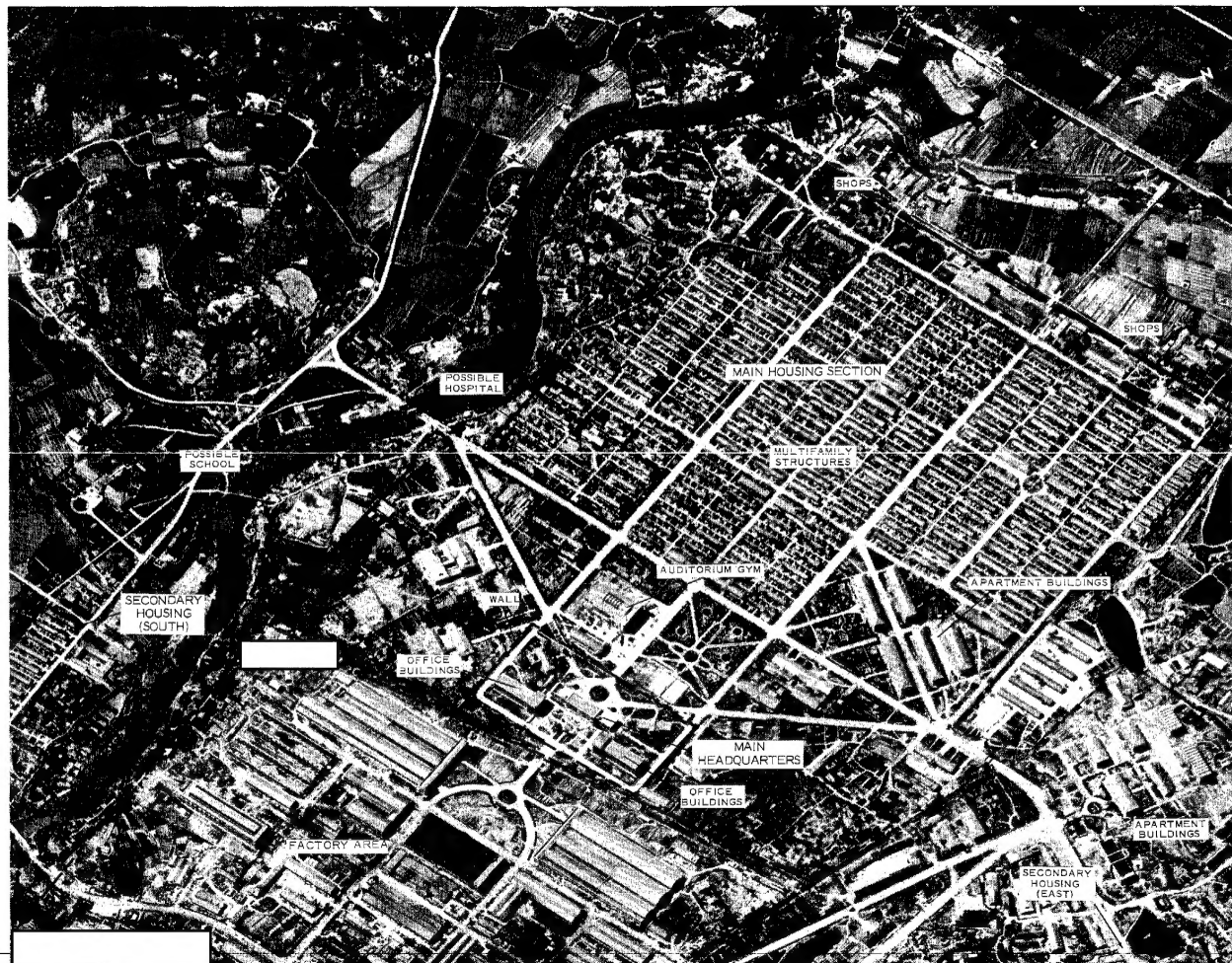


FIGURE 7. PHOTOGRAPH OF HOUSING AND ADMINISTRATION AREA

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only in size and layout. The buildings are typical of industrially-associated housing, but the aforementioned landscaping and roads appear to be better than average. Most of the housing consists of multifamily, single-story dwellings with perhaps 8 to 12 families in each building, but there are also a few groups of multistory apartment buildings as indicated in Figure 7.

The housing facilities are summarized as follows:

Main housing section: 180 (159, 4-entrance and 21, 6-entrance) single-story, multifamily structures with 10 service buildings; 6 multistory apartments; and 10 single-story unidentified buildings (possible hospital).

Secondary housing (South): 8 (4-entrance) multifamily, single-story structures with 4 possible service buildings.

Secondary housing (East): 53 barracks with 9 service buildings.

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REQUIREMENT

CIA. OSI/R-74/62

NPIC PROJECT

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